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ABSTRACT

The transformational-generative concept of language learning as constructing a theory about language inspired this experiment. Language performance developed by a method of language learning designed to help the student study about a second language through manipulative exercises was compared to language performance developed by a method not directly designed to encourage theorizing about language. In this experiment the second language was English and the particular area of language capability tested was nominalization, using Vendler's typology, as a measure of maturity of language performance. Statistics derived from written tests by 10 students in the experimental method and 10 students in a control group, measured against the test results of 10 volunteer native speakers, indicated that the experimental study of nominalization through sentence-combining exercises did facilitate the development of language competence in that area and that it increased the capability of the experimental group toward the performance of the native speaker. Tables demonstrating the statistical results and an appendix on Vendler's typology of nominals are included. (VM)

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THE RELATION OF STUDY ABOUT LANGUAGE TO LANGUAGE PERFORMANCE WITH SPECIAL REFERENCE TO NOMINALIZATION

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ABSTRACT

In order to test the hypothesis that a learner's construction of a theory of a second language can be facilitated by study about language in the form of sentence-combining exercises which focus the learner's attention on pre-selected language data, some experimental materials were prepared, and the language performance of the students who studied from these materials was compared with the language performance of students who had not studied from them, on the assumption that if facilitation had occurred, it could be inferred from language performance. The particular area of competence that the experimental materials aimed to facilitate was English nominalization.

There were changes in the pre and post language performance of the experimental group which showed a pattern of development in the direction of native speaker performance. The changes in the pre and post language performance of the control group, where they occurred, showed no consistent pattern. (Native speaker performance was characterized in two ways--by drawing on Hunt's findings (1965 and 1970) and by collecting samples of language performance from native speakers comparable to the ones collected from the non-native speakers who were the subjects in this study and analyzing them in the same way that the samples from the non-native speakers were analyzed.) The number of subjects in this study was small--10 control and 10 experimental--and so the findings can be said only to be suggestive.

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THE RELATION OF STUDY ABOUT LANGUAGE TO LANGUAGE PERFORMANCE WITH SPECIAL REFERENCE TO NOMINALIZATION*

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Introduction

Recent work in language and language learning within the transformational-generative framework has called our attention to the ability that a child brings to the task of learning his first language, an ability to construct a theory of language. But not much is known about how this ability may work in learning a second language nor how the hypotheses-making abilities of adults differ from such abilities in children. However, people do in fact learn second languages without benefit of formal instruction--and sometimes even despite formal instruction. A person can somehow--and more or less unconsciously, depending on his linguistic sophistication--construct a theory of a second language, given a rich enough language environment and the motivation to learn.

In order to construct a theory of a second language it must be the case that the learner responds selectively to the language that he is exposed to--just as this is the case in first language learning. There just would not be time enough to attend to everything. So, in a very real sense, there may be no such thing as exposure to random language data in second language learning, just as there is not, given the transformational generative view of language, in first language learning.

Working within this view of language, the research reported here is based on the assumptions first, that given exposure to enough language data, adults have the ability to construct a theory of a second language, exercising

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selectivity in what they attend to in the data in ways yet unknown, and second, that the construction of this theory can be promoted in the classroom by providing a rich language environment, rich both in the amount and variety of meaningful language the learner is exposed to and in the opportunities provided him for using the second language as a vehicle for expressing his thoughts and ideas.

A third assumption, and this is the assumption which the present research tries to test, is that the learner's theory-construction can be facilitated by supplementing such language experience as that just alluded to with pre-selected language data packaged in the form of manipulative exercises which offer the learner direction in what he can profitably attend to and through which he can instruct himself, again in ways unknown, in how the second language works.

If a learner's study about how the second language works, through such manipulative exercises, does indeed facilitate his construction of a theory about the second language, such facilitation can only be inferred from a change in his language performance, a change which might be attributable to such study. Any such facilitation which is inferred from language performance could be taken as evidence that study <u>about</u> language, in the manipulative, pre-packaged mode described here, helps the student indirectly to increase his mastery of his second language. This emphasis on the indirection of such influence of study about language on language performance follows Mellon (1968).

The research reported here is a mini-project involving a very small

number of subjects. It tries to find out if a learner's study of certain nominalizing processes in English, in the form of sentence-combining exercises, facilitates the development of his competence in English nominalization, such competence to be inferred from his language performance.

Description of the experimental materials

Experimental materials were prepared for the experimental subjects. The materials were in two parts, classwork and homework. For classwork, ten texts were provided on various subjects, such as folk medicine, the nature of intelligence, and proverbs. Oral, edited renditions of these texts and also unedited--in fact, unrehearsed--native speaker discussions on topics related to the texts were taped. Suggestions for speaking activities related to the topic of each text were provided. Class time was spent listening to the tapes and talking about topics related to the texts. Apart from the fact that topics to talk about were suggested, the class discussions were student-centered, and the teacher was a resource person who coordinated reports, debates, dramas, small group discussions, etc., and who occasionally put words in a student's mouth when it seemed appropriate to do so.

For homework, vocabulary exercises and sentence-combining exercises were provided. The sentence-combining exercises introduced eleven types of nominals, as described by Vendler (1968), and also incorporated some of the notions about factive and non-factive nominals presented by the Kiparskys (1970). The only connection between the sentence-combining exercises and the classwork was that the subject matter

of the sentences in the exercises was the same as the subject matter of the text in each lesson, and where the sentences had truth value, the truth value derived from what the texts said.

The lessons were not ordered. There were two experimental classes, and each took up the lessons in different order, according to their interest in the topics. At the end of each lesson, the students took a quiz covering points practiced in the sentence-combining exercises in that lesson. The quizzes consisted of taking dictation of sentences, recognizing paraphrases, and recognizing "wrong" sentences.

Vendler's description of nominals was selected, despite many problems in the analysis--any analysis of nominals presents many problems--because he includes in his description the paraphrase possibilities of each nominal type, and this provided a useful guide for preparing the sentence-combining exercises. Further, he organizes his analysis of nominal types in terms of the degree to which their deep structure is obscured in their surface structure, and this provided a dimension worth examining.

He establishes three degrees of obscuration. His types A, B, and C are clauses, and reflect the smallest degree of obscuration. His types D and E are gerunds and nouns derived from underlying verbs, the subjects of which may optionally appear in the surface even in cases where they fulfill the requirements for deletion (<u>his asking the question</u> in <u>He told me about (his) asking the question</u>). These types reflect a middle degree of obscuration. His types C_a, F. G, H. I, J, and K are infinitives and gerunds derived from underlying verbs whose subjects usually cannot appear in the surface. These types reflect the greatest degree of obscuration. See the Appendix for a description of these nominal types.

Design of the experiment

In the fall of 1969, at the University of Hawaii English Language Institute, four classes--two intermediate and two high intermediate oral English classes--were selected, on the basis of instructor volunteers, to be two experimental and two control classes./ The students were heterogeneous in language background. The basic text in one of the control classes was Utterance-Response Drills by Jason Alter and in the other Using American English by Leonard Newmark, et al. However, the intent was to compare the experimental treatment with lack of that treatment, not to compare two treatments. The experimental classes received instruction from the experimental materials referred to above, but neither class covered the lessons dealing with nominal types C, C_a, F, G, and K.

Both control and experimental subjects spent the same amount of time in class each week, and the classwork for both consisted of oral activities. In addition to classwork, the control subjects spent two or three hours a week in the language lab, three if they were intermediate, two if they were high intermediate. The experimental students had homework assignments, in lieu of attending the language lab, which took them varying amounts of time, averaging $1\frac{1}{2}$ hours a week at the beginning of the semester and tapering off to an average of $\frac{1}{2}$ hour a week toward the end of the semester. The semester was 15 weeks long.

Though the goal in all the classes was to help the students improve their oral English, the testing for this experiment was in the written mode, on the assumption that oral performance and written performance are equally valid manifestations of underlying competence. The writing assignments were the same at both pre- and post-test times. Hunt (1965 and 1970) has observed

that of the three kinds of subordinate clauses (adjective, adverbial, and noun), the noun clauses seem to be least dependent on maturity and most dependent on subject matter. Hence the effort to keep the subject matter constant.

A maximum of 30 minutes was allowed for each writing assignment and students were requested to write with attention to what they were saying and not to worry about making errors. They were told that the purpose of the testing was to help the English Language Institute identify the most persistent problems of non-native speakers of English, so that this information could be used in the preparation of materials. They were requested not to worry about overall organization.

The writing assignments were:

1. A response to a film without words (The Hunter and the Forest, Encyclopedia Britannica, 8 mins.). Students, after viewing the film twice in succession, were asked to summarize, criticize, evaluate, or comment on the film in any way that they chose.

2. A description and discussion of the kind of education a child in the student's country receives before he begins the first year of elementary school. Before writing this, students were given a passage from John Holt's Why Children Fail to read at home, and they had a chance to discuss this passage in class.

3. A rewriting of two paragraphs composed of short, simple sentences in order to make them "sound better." These paragraphs were themselves re-writes of two paragraphs taken from a report of man's exploration of the moon in Time (July 18, 1969), selected because they contained several nominalizations.

From these writing assignments, 30 T-units were collected from each student at both pre- and post-test times: the first 12 from the response to the film, the first 12 from the composition on pre-school education, and the first 6 from the rewritten paragraphs. The T-unit is, of course, the measure established by Hunt (1965), the length of which is an indicator of

maturity. The present study followed Mellon (1968) in counting condition, concessive, reason, and purpose clauses as separate T-units, rather than as parts of T-units. The T-units were then analyzed for word-length and for the number, types, and functions of nominals appearing in them.

Ten control subjects and eleven experimental subjects each completed three pre and three post compositions containing the required number of T-units. Ten of the eleven experimental subjects were selected by matching as closely as possible the total number of nominals produced by the ten control subjects with the total number produced by ten of the experimental subjects at pre-test time. The ten control subjects produced 101; the ten experimental subjects, selected from the eleven, produced 103. In each group of ten subjects, four were intermediate level and six were high intermediate.

In order to have a baseline against which to measure the performance of both control and experimental subjects, the same three writing assignments were given to ten volunteer native speakers, a mix of undergraduates and graduates, just as the non-native speakers were, who, as future English teachers, were enrolled in a course in Modern English Grammar. The same number of T-units was taken from the writings of these native speakers in the same way as from the writings of the non-native speakers, and were analyzed in the same way. In the summary of findings below, the performance of the native speakers is taken to be 100%, and the performance of the non-native speaker control and experimental subjects is measured against that percentage. The calculations for significance in Tables 1 and 2 are based on the percentages.

One type of nominal, Vendler's K, did not occur at all in any of the T-units collected, and so no further notice is taken of it here.

A word should be said about the identification of T-units and nominals in the writing of the control and experimental subjects. It was evident very early that it would be impossible to count sentences, since the punctuation was so erratic. It did, however, turn out to be easy to mark off the T-units. Only in two or three instances was it necessary to delete a few words as garbles. In essentially all the writing it was clear what the student was saying and what the T-units were, even though his English was sometimes a bit deviant. On the data sheets for all the subjects is recorded whether a nominal is syntactically deviant and whether the matrix in which a nominal is embedded is syntactically deviant, but these deviances have been ignored in the findings reported here, since it was in all cases possible to identify the type of nominal the student was aiming for and its function.

The measures taken in the 300 T-units collected from the control and experimental groups at both pre- and post-test times and from the 300 T-units collected from the native speakers were as follows:

1. T-unit length (Table 1)
2. Number of nominals produced (Table 2)
3. Ratio of nominal types (A-J) to total number of nominals in the 300 T-units from each group of subjects at each test time (Table 3)
4. Ratio of nominal types (degree of obscuration) to total number of nominals in the 300 T-units from each group of subjects at each test time (Table 4)
5. Ratio of nominal types (degree of obscuration) in the various functions to total number of nominals of each type (Table 5)
6. Ratio of nominal functions to total number of nominals in the 300 T-units from each group of subjects at each test time (Table 6)

Results and discussion

In the analysis of the data the first step was to examine T-unit length and the number of nominals produced for evidence of quantitative change, the second, to examine the nominals for direction of change.

Measurement of the pre-post growth in T-unit length and in number of nominals produced for each group showed that, for the experimental group, growth both in T-unit length and in number of nominals produced was significant at the .05 level. The control group showed no significant growth in either (see Tables 1 and 2).

Tables 1 and 2 about here

At pre-test time, the control and experimental groups showed no significant differences in T-unit length or in number of nominals produced in 300 T-units. This was taken as evidence that the two groups were evenly matched for the purposes of this study. Neither were the differences between the two groups in these two measures significant at post-test time, though the difference in number of nominals produced approached significance.

An examination of the actual number of nominals produced by each subject (see Table 2) shows that among the experimental subjects none showed a decrease, whereas among the control subjects six of the ten showed a decrease. Why these six should have decreased their use of nominals is not clear. It may be that it simply indicates random performance, a possibility that the other results seem to point toward also.

The nominals were then examined for direction of change, specifically for direction of change in the types of nominals used and in the functions in

which they were used, in order to see whether there was any growth in either group in the direction of maturity, as defined by Hunt (1965) as "the observed characteristics of writers in an older grade."

Hunt (1965) concluded that one mark of maturity is the use of "near-clause" nominals. And along the same line, O'Donnell, Griffin, and Norris (1967) pointed out that in the language of the children that they studied, from K through 7, constructions resulting from deletion transformations increased, frequently significantly, from grade level to grade level. Hunt's research also showed that, although noun-clauses increase significantly from fourth to eighth to twelfth grades, his "superior adults" used fewer noun clauses per T-unit than twelfth graders (though more than fourth graders). Another mark of maturity according to Hunt (1965) seems to be the ability to use noun clauses in functions other than object of verb. Further, his research showed that none of his fourth graders used gerunds as subjects, whereas two of eighteen eighth graders and six of eighteen twelfth graders did.

In the present study the experimental group showed a pattern of change in the direction of the first mark maturity--increase in "near-nominals." They also showed a decrease in noun clauses. The control group showed no consistent pattern of change.

Tables 3 and 4 show the ratios of nominal types to total number of nominals produced by each group at each test time. Table 3 shows the ratio of each nominal type (A through J) separately; Table 4 shows the ratio of these same types grouped in three classes according to degree of obscuration. The two tables contain the same information, but the direction of change can be seen more clearly in Table 4.

For ease of reference, the three classes of "degree of obscuration" will be referred to as Type I (ABC), Type II (DE), and Type III (C_a, F-J),

Type I showing the smallest degree of obscuration, Type II representing an intermediate degree, and Type II the greatest degree.

Tables 3 and 4 about here

The control group increased in use of Type I. The experimental group decreased in use of this type, using, at post-test time, even a smaller proportion than the native speakers used.

The control group showed no change in use of Type II. The experimental group increased in use of this type, and approached closer than the control group to native speaker performance, though it did not match it.

The control group decreased in use of Type III. The experimental group showed no change. The control group matched native speaker performance more closely than the experimental group did, though the experimental group surpassed native speaker performance at both pre- and post-test times.

Thus, as far as Type III is concerned, the experimental group did not show any pattern of change as it did in Types I and II. Two observations seem relevant. In the first place, the experimental subjects did not cover the lessons in the experimental materials which dealt with C_a, F, and G—three of the six Type III nominals. In the second place, nominals of Type III are much more restricted in function than are those of Types I and II. Table 5 shows that the function of Type III is almost exclusively object of verb (meaning either object or complement, in traditional terminology). Further, in this function its occurrence is governed by the verbs that are used. Such constraints may work against an increase in use of this type of nominal in such a situation as the present one, where the study by the

students was directed toward syntactic manipulations, not toward the lexicon.

Table 5 about here

The experimental group also showed a pattern of change in the direction of the second mark of maturity--the use of more clauses and gerunds as subjects. The control group did not. See Table 5, which shows the direction of change in functions according to nominal type. The experimental group increased in their use of Type I (clauses) and Type II (which includes gerunds) as subjects. The control group decreased in the former and increased in the latter. In the functions performed by Types I and II the experimental group came closer to native speaker performance in 7 of the 10 categories listed in Table 5; the control group came closer in the other 3.

Table 6 shows the ratio of nominal function to total number of nominals, disregarding nominal types. It shows that at post-test time, in the first four functions listed (subject, complement of be, object of verb, and object of preposition in adverbial prepositional phrases) the experimental group approached native speaker performance more closely than the control group did, whereas in the last functions (objects of prepositions in adjective prepositional phrases and appositives) the control group approached more closely.

Table 6 about here

Table 6 also shows that both groups decreased in the proportion of nominals used as complements of be. But in the other functions, except the appositive, the direction of change for the two groups was exactly the opposite--where one increased, the other decreased. In the case of the

appositive, the control group showed no change and the experimental group increased, using at post-test time a greater proportion of nominals as appositives than the native speakers did, though the control group approached native speaker performance more closely than the experimental group did.

Summary and conclusions

The experiment reported here attempted to ascertain whether or not study of English nominalizing processes through sentence-combining exercises facilitates a second language learner's competence in English nominalization as reflected in his English language performance. The performance of the experimental group, which pursued such study, was compared with the performance of a control group which did not pursue such study. The comparison was of a treatment versus lack of that treatment.

The findings suggest that it may be the case that, with the experimental subjects, the study of nominalization in the manner described did indeed facilitate the development of language competence in that area. The changes in the experimental group moved in the direction of native speaker performance whereas the changes in the control group, where they occurred, reflect no pattern. The number of subjects and the number of T-units was small. So the following results can be interpreted only as evidence that the experimental treatment might have facilitated the learners' theory-construction in the area of nominalization.

1. Pre-post growth in number of nominals produced in 300 T-units was significant at the .05 level for the experimental group. The control group showed no significant increase.

2. Pre-post growth in T-unit length was significant at the .05 level for the experimental group. The control group showed no increase.

3. The direction of change in terms of the proportionate use of the various nominal types moved in the direction of native speaker performance for the experimental group. That is, the experimental group decreased in their proportionate use of Type I (ABC) and increased in their use of Type II (DE). The direction of change in the control group showed no pattern.

4. Also, for the experimental group, the direction of change in terms of the proportionate use of certain types of nominals in certain functions moved in the direction of native speaker performance, with an increase in Types I and II as subject and a decrease in Type I as object. Again, the direction of change for the control group showed no pattern.

APPENDIX

The 30 T-units collected from each subject at each test time were checked for the occurrence of the following types of nominals, following Vendler (1968). Types C and E have sub-types.

A THAT clauses

B WHETHER OR NOT clauses

C WH-clauses

C_a Reduced WH-clauses (what to do, how to go)

D Gerundive nominals*(his killing bird)

$E_{non\ der}$ Action nominals*(non-derived) with ing suffix (his killing of the bird)

E_{der} Action nominals (derived) with derivational suffix (his destruction of the whale)

F ING-forms after verbs in which the underlying subject is the same as the surface subject of the matrix sentence and which do not allow occurrence of the underlying subject in the surface (shooting the deer in He resisted shooting the deer). Also included were TO-forms which could be paraphrased by these ING-forms. TO-forms were in fact more common. The verbs underlying these forms are indicative.

G ING-forms after verbs in which the underlying subject is the same as the object of the matrix sentence and which do not allow occurrence of the underlying subject in the surface (the deer eating in He watched the deer eating). These ING-forms can be paraphrased by a plain form (He watched the deer eat). The verbs underlying these forms are indicative.

H TO-forms after verbs in which the non-surface-occurring underlying subject is the same as the surface subject of the container sentence (to explore the moon's surface in They want to explore the moon's surface). In some cases, the underlying subject of the TO-form is the same as the object, rather than the subject, of the matrix sentence (him to explore

*These labels are from Robert B. Lees in The Grammar of English Nominalizations (Publication Twelve of the Indiana University Research Center in Anthropology, Folklore, and Linguistics, Volume 26, Number 3, July 1960, Reissued January 1963).

the moon's surface in They wanted him to explore the moon's surface, but verbs occurring in such sentences have the potential of being followed by the TO-form alone. The verbs underlying these forms are subjunctive.

I TO-forms whose non-surface-occurring underlying subjects are always the same as the object of the atrix sentence. This is a difficult category to recognize and some items that were accepted may not in fact be nominals. So the category here will be defined in terms of the verbs accepted as matrix verbs: teach, drive, permit, make, compel, let, encourage, cause, allow, force, help, tempt, urge, have, ask, and convince (They encouraged him to go). The verbs underlying these forms are subjunctive.

J TO-forms occurring after for, in matrix sentences with certain adjectives like good, easy (It was easy for him to do that) or with certain nouns like burden (It was a difficult burden for him to bear).

K TO-forms which come after of in matrix sentences with certain adjectives like nice, smart (It was nice of him to come). No nominals of this type occurred in the T-units collected.

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TABLE 1

T-Unit Length
(in 30 T-unit sample from each subject using native speaker group mean of 15.3 words per T-unit as 100%)

	Control				Experimental			
	Pre		Post		Pre		Post	
Subject	Words	%	Words	%	Words	%	Words	%
1	7.9	52	8.5	55	10.5	69	12.8	84
2	9.4	61	9.7	63	10.8	71	11.6	76
3	9.4	61	7.1	46	9.3	61	11.8	77
4	12.0	78	10.1	66	13.0	85	12.1	79
5	9.3	61	11.2	73	9.9	65	11.3	74
6	10.8	71	10.4	68	9.0	59	17.3	113
7	10.6	69	9.7	63	12.4	81	11.3	74
8	11.5	75	16.4	107	10.7	70	13.8	90
9	16.1	105	13.8	90	12.0	78	16.7	109
10	13.2	86	13.7	90	7.3	48	8.7	57
Group Mean	11.0	72	11.0	72	10.5	69	12.7	83

Difference between the groups
DF: 18
t-ratio required at .05: 2.10
t-ratio required at .01: 2.88

Difference, Control Pre/Exper Pre: non-sig (t=.5033)
Difference, Control Post/Exper Post: non-sig (t=1.41)

Growth in each group
DF: 9
t-ratio required at .05: 2.26
t-ratio required at .01: 3.25

Growth, Control Pre/Post: non-sig (t=.19)
Growth, Exper Pre/Post: sig at .05 (t=2.5)

TABLE 2

Number of Nominals Produced
(in 30 T-unit sample from each subject using native speaker group mean of 11.9 as 100%)

	Control				Experimental			
	Pre		Post		Pre		Post	
Subject	No. of nom.	%	No. of nom.	%	No. of nom.	%	No. of nom.	%
1	5	42	2	17	13	109	14	118
2	6	50	7	59	11	92	18	151
3	5	42	4	34	7	59	7	59
4	17	143	14	118	8	67	11	92
5	11	92	9	76	13	109	13	109
6	5	42	9	76	11	92	19	159
7	17	143	12	101	11	92	14	118
8	3	25	18	151	4	34	16	134
9	20	168	15	126	15	126	23	193
10	12	101	13	109	10	83	11	92
Group Mean	101	85	103	86	103	86	146	123

Difference between the groups
DF: 18
t-ratio required at .05: 2.10
t-ratio required at .01: 2.88

Difference, Control Pre/Exper Pre: non-sig (t=.054)
Difference, Control Post/Exper Post: non sig (t=2.06)

Growth in each group
DF: 9
t-ratio required at .05: 2.26
t-ratio required at .01: 3.25

Growth, Control Pre/Post: non-sig (t=.3)
Growth, Exper Pre/Post: sig $p<.05>.01$ (t=3.19)

TABLE 3

Ratio of Nominal Types (A-J) to Total Number of Nominals

	Control				Experimental				Native Speaker	
	Pre		Post		Pre		Post			
Nom. Type	No. of Nom.	Ratio %	No. of Nom.	Ratio %	No. of Nom.	Ratio %	No. of Nom.	Ratio %	No. of Nom.	Ratio %
All Types	101		103		103		146		119	
A	27	.27 150	26	.25 133	30	.29 161	25	.17 94	22	.18 100
B	0		2	.02 67	1	.01 33	1	.007 23	3	.03 100
C	6	.06 120	18	.17 340	7	.07 140	7	.05 100	6	.05 100
C_a	6	.06 120	1	.01 33	13	.13 433	19	.13 433	3	.03 100
D	12	.12 50	16	.16 67	14	.14 58	32	.22 92	29	.24 100
$E_{non\ der}$	4	.04 133	0		4	.04 133	6	.04 133	3	.03 100
E_{der}	7	.07 50	8	.08 57	4	.04 29	9	.06 43	16	.14 100
F	5	.05 56	4	.04 44	6	.06 56	11	.08 89	11	.09 100
G	3	.03 100	2	.02 67	1	.01 33	1	.007 23	4	.03 100
H	18	.18 450	10	.10 250	7	.07 175	8	.05 126	5	.04 100
I	11	.11 79	14	.14 100	14	.14 100	24	.16 113	17	.14 100
J	2	.02	2	.02	2	.02	2	.02	0	

TABLE 4

Ratio of Nominal Types (Degree of Obscuration)
to Total Number of Nominals

	Control				Experimental				Native Speaker	
	Pre		Post		Pre		Post			
Nom. Type	No. of Nom.	Ratio %	No. of Nom.	Ratio %	No. of Nom.	Ratio %	No. of Nom.	Ratio %	No. of Nom.	Ratio %
All Types	101		103		103		146		119	
I ABC	33	.33 127	46	.45 173	38	.37 142	33	.23 88	31	.26 100
II DE	23	.23 58	24	.23 58	22	.21 53	47	.32 80	48	.40 100
III C_aFG H IJ	45	.45 132	33	.32 91	43	.42 124	66	.43 126	40	.34 100

TABLE 5

Ratio of Nominal Types (Degree of Obscuration) in Various Functions
To Total Number of Nominals of Each Type

	Control				Experimental				Native Speaker	
	Pre		Post		Pre		Post			
Type & Function	No. of Nom.	Ratio %	No. of Nom.	Ratio %	No. of Nom.	Ratio %	No. of Nom.	Ratio %	No. of Nom.	Ratio %
I(ABC) Total	33		46		38		33		31	
I Subject	4	.12 63	1	.02 11	5	.13 68	5	.15 79	6	.19 100
I Comp. of *be*	8	.24 343	7	.15 214	4	.11 157	1	.03 43	2	.07 100
I Obj. of verb	21	.64 98	35	.76 117	29	.76 117	21	.64 98	20	.65 100
I Obj. of prep.	0		1	.02 29	0		1	.03 43	2	.07 100
I Appos.	0		2	.04 130	0		5	.15 500	1	.03 100
II(DE) Total	23		24		22		47		48	
II Subject	3	.13 76	5	.21 123	1	.04 23	5	.11 65	8	.17 100
II Comp. of *be*	6	.26 325	3	.12 150	2	.09 112	5	.11 137	4	.08 100
II Obj. of verb	6	.26 200	4	.17 131	4	.18 138	5	.11 85	6	.13 100
II Obj. of prep.	8	.35 56	10	.42 68	14	.64 103	27	.57 92	30	.62 100
II Appos.	0		2	.08	1	.05	5	.11	0	
III(C_a,F-J) Total	45		33		43		66		40	
III Subject	2(J)	.04	2(J)	.06	2(J)	.05	2(J)	.03	0	
III Comp. of *be*	0		0		0		0		0	
III Obj. of verb	39	.87 92	30	.91 96	41	.95 100	59	.89 94	38	.95 100
III Obj. of prep.	0		1(C_a)	.03	0		1(J)	.02	0	
III Appos.	4(C_a)	.09 180	0		0		4(C_a)	.06 120	2(C_a)	.05 100

TABLE 6

Ratio of Nominal Functions to Total Number of Nominals

	Control				Experimental				Native Speaker	
	Pre		Post		Pre		Post			
Function	No. of Nom.	Ratio %	No. of Nom.	Ratio %	No. of Nom.	Ratio %	No. of Nom.	Ratio %	No. of Nom.	Ratio &
All Functions	101		103		103		146		119	
Subject	9	.09 75	8	.08 67	8	.08 67	13	.09 75	14	.12 100
Comp. of be	14	.14 280	10	.10 200	6	.06 120	6	.05 80	6	.05 100
Object of verb	66	.65 120	69	.67 124	74	.72 133	84	.58 107	64	.54 100
Obj. of prep.(adv)	8	.08 38	6	.06 29	10	.10 49	22	.15 71	25	.21 100
Obj. of prep.(adj)	8	.08 133	6	.06 100	4	.04 67	7	.05 83	7	.06 100
Apposi-tive	4	.04 133	4	.04 133	1	.01 33	14	.10 333	3	.03 100